

United States Department of Agriculture Forest Service

Aviation Safety Alert

No. 2005-05

August 5, 2005

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Subject:

AS350 SERIES HELICOPTER COLLECTIVE LOCKING MECHANISM AND
HYDRAULIC CHECKS

Area of Concern: Employees on board helicopter during the hydraulic checks

Distribution: All Personnel Using AS 350 Helicopters

Discussion: There have been 4 USDA Forest Service Aviation Safety Alerts and 1 DOI OAS/Aviation Management Safety Alert issued over the past 3 years addressing the locking capability of the collective during the “hydraulic accumulator test”. The history of the locking mechanism dates back to an accident that occurred in 2002 involving a Eurocopter AS350 series helicopter in which the pilot was unable to maintain control of the aircraft due to the loss of hydraulic pressure. The loss of hydraulic pressure was due to a test, required by the flight manual, during which the pilot is required to switch off the hydraulics. The collective is supposed to be secured down by a locking device during this test. Subsequent investigations have revealed worn “hold-down studs” that had allowed the collective to become unlocked and rise during the hydraulic test allowing the helicopter to become airborne with the hydraulics off. The following Aviation Safety Alerts have been written to raise awareness of the possibility of the collective un-securing during this test and possible loss of control of the aircraft as a result of this condition.

Alert Number(s):

2002-22, 2003-06, 2003-12, 2004-03
03-01

Issued By:

Forest Service
DOI, OAS/Aviation Management

Note: the above referenced alerts can be found at the following web sites:

http://www.fs.fed.us/fire/av_safety/safety_alerts/index.html and
<http://www.oas.gov/oassafte/salerts.htm>

Recommendation:

With the awareness of the prior alerts and flight manual revisions, technicians and pilots are now more cognizant of the results of a worn collective locking mechanism and of a failure to properly lock the collective prior to performing the hydraulic test. It is now recommended that employees remain **on board** the helicopter during the hydraulic checks.

Additionally, a Eurocopter flight manual revision has revised the hydraulic test procedures to include a “Caution” statement alerting that “If not locked: the collective pitch will come up when the accumulators are depleted or when the hydraulic cutoff switch is set to off”. Also be advised that Eurocopter does not condone the hydraulic test being performed at any engine power setting/rpm other than that specified in the flight manual.

Consult the AS350 helicopter flight manual for the latest revision.

Consult the AS350 helicopter flight manual for the frequency of this check.

Please share the above mentioned alerts and this Safety Alert with your AS350 Series Pilots, Mechanics, and helicopter crewmembers.

/s/ Ron Hanks
National Aviation Safety and Training Manager
USDA Forest Service

/s/ Pat Norbury
National Aviation Operations Officer
USDA Forest Service